PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FP1538	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/SG 02/00147	International filing date *(day/month/year)* 01.07.2002	Priority date *(day/month/year)* 01.07.2002
International Patent Classification (IPC) or both national classification and IPC H04L12/44		
Applicant INFINEON TECHNOLOGIES AG et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23.12.2003	04.10.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Lebas, Y Telephone No. +49 89 2399-8980

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/SG 02/00147

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-8 as originally filed

Claims, Numbers

1-7 filed with telefax on 25.05.2004

Drawings, Sheets

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-7
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-7
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-7
	No:	Claims	

2. Citations and explanations

   see separate sheet

Cited Documents:

D1: US-B-6 279 0971 (KAKU SHINKYO) 21 August 2001 (2001-08-21)
D2: WO 99/13620 A (SJOEDIN PETER ;SICS (SE); MOESTEDT ANDREAS (SE)) 18 March 1999 (1999-03-18)
D3: US-B-6 308 2181 (VASA SURESH) 23 October 2001 (2001-10-23)
D4: EP-A-0 594 196 (DIGITAL EQUIPMENT CORP) 27 April 1994 (1994-04-27)

From the available prior art, the subject matter of D1 is considered to represent the closest to that of the present application.

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1a. In accordance with features of claim 1, D1 discloses a method of associating look-up table addresses with input addresses (abstract, lines 1-2), the method including for successive input addresses A_0:
- using A_0 to generate y+1 look-up table addresses H_0, H_1, H_2,...,H_y, where y is an integer greater than or equal to one ("first set of bits", "second set of bits" selected from the compressed input address in D1, abstract, lines 4-5 and 10-11); and
- according to at least one criterion associating the address A_0 with a selected one of the addresses H_0, H_1, H_2,...,H_y (input address is associated with the first set or the second set of bits, depending on the existence of an unoccupied memory slot in the memory location pointed to by the first set of bits, see abstract, lines 18-25).

1b. The subject-matter of claim 1 differs mainly from the disclosure of D1 in that each of the addresses H_1, H_2,...,H_y is obtained from the address A_0 by first forming a respective string A_n having the same number of bits as A_0, and then applying the algorithm by which H_0 is obtained from A_0.

This feature solves the technical problem of maximizing the variability in the alternate addresses H_1, H_2,...,H_y in order to provide an available location in the look-up table.

As there is no indication in any of the prior art documents D1-D4, to modify the adaptive address lookup generation method of D1 in order to improve the variability of the alternate addresses, an inventive step is acknowledged to the method disclosed in claim 1.

2. Independent claim 7 is a claim for a switch specially adapted for carrying out all the method steps of claim 1. The subject-matter of independent claim 7 is therefore also novel and inventive (Articles 33(1)-(3) PCT).

3. The subject-matter of dependent claims 2-6 is also novel and inventive (Articles 33(1)-(3) PCT).

Formal deficiencies in the international application:

a. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

b. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

c. The description is not adapted to the claims (Rule 5.1(a)(iii) PCT).

Claims

1. A method of associating look-up table addresses with MAC addresses, the method including for successive MAC addresses A_0:

using A_0 to generate y+1 look-up table addresses H_0, H_1, H_2,..., H_y, where y is an integer greater than or equal to one, wherein each of the addresses H_1,H_2, ..., H_y is obtained from the address A_0 by first forming a respective string A_n having the same number of bits as A_0, and then applying the algorithm by which H_0 is obtained from A_0; and

according to at least one criterion associating the address A_0 with a selected one of the addresses H_0, H_1, H_2, ..., H_y.

2. A method according to claim 1 wherein the criterion is that A_0 is associated with H_n where n is the smallest integer in the range 0 to y such that there is presently no MAC address associated with the address H_n.

3. A method according to claim 1 wherein the criterion is that A_0 is associated with H_n where n is the smallest integer in the range 0 to y such that the number of MAC addresses associated with the address H_n is less than a predetermined integer.

4. A method according to claim 1, claim 2 or claim 3 wherein the addresses H_1 to H_y are generated successively upon it being found that the preceding H_n does not meet a criterion.

5. A method according to claim 4 wherein the value of y is predetermined, whereby the maximum number of addresses H_0, H_1, H_2, ..., H_y which are generated is no more than a predetermined number, even if one of these addresses meets the criterion.

6. A method according to any one of the preceding claims wherein each A_n is obtained by modulating a string S_n obtained by a selection from A_0 with a respective set of Walsh codes.

7. A switch including a memory for defining a look-up table having a plurality of addresses and a processor for associating MAC addresses with addresses of the look-up table,

the processor being arranged to use each MAC address A_0 to generate y+1 look-up table addresses H_0, H_1, H_2, ..., H_y for y an integer greater than or equal to one, wherein each of the addresses H_1,H_2, ..., H_y is obtained from the address A_0 by first forming a respective string A_n having the same number of bits as A_0, and then applying the algorithm by which H_0 is obtained from A_0, and according to at least one criterion to associate the address A_0 with a selected one of the addresses H_0, H_1, H_2, ..., H_y.